



REFRIGERATOR FOR LP-GAS AND ELECTRIC OPERATION.

INSTALLATION AND OPERATING INSTRUCTIONS

DISTRIBUTORS

EAST OF ROCKY MOUNTAINS

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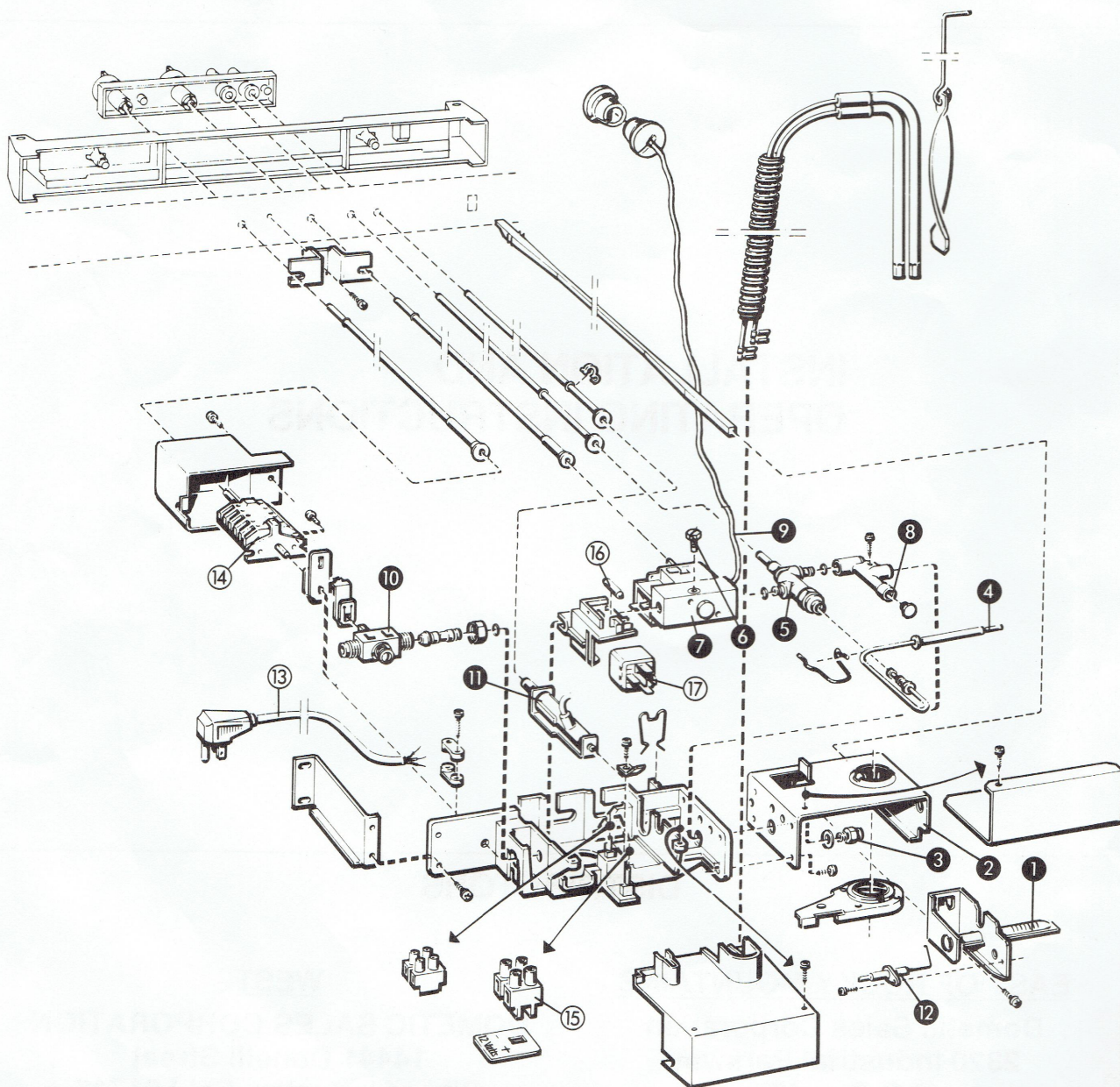


Fig 1

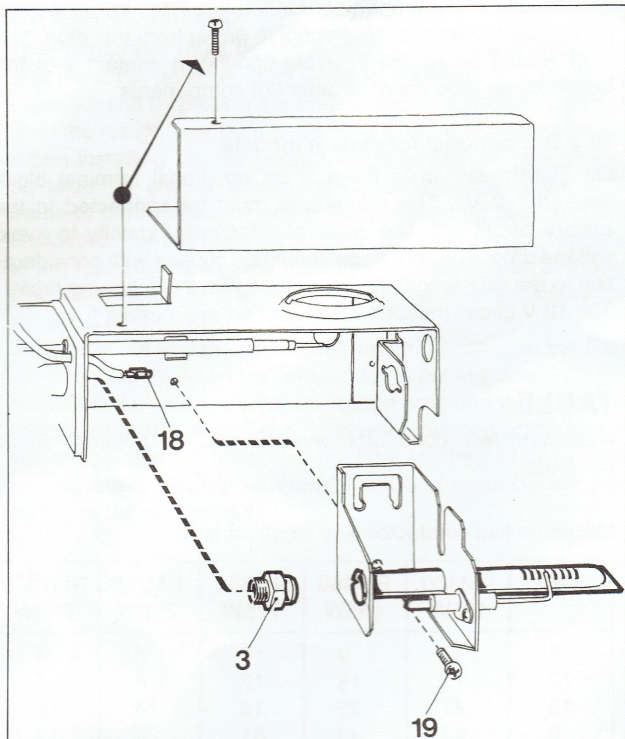


Fig. 2

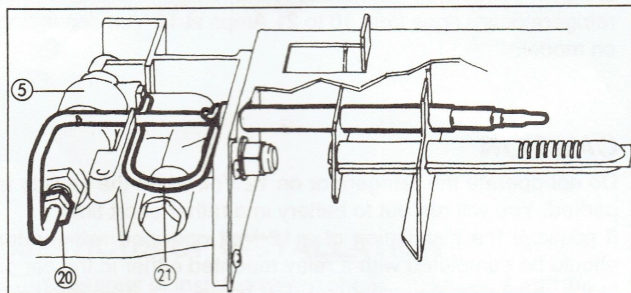


Fig. 3

Gas equipment parts

1. Burner tube
2. Burner housing
3. Jet
4. Feeler point (thermocouple)
5. Flame failure safety device
6. Bypass screw
7. Gas/Electric thermostat
8. Pressure test gage connection
9. Capillary tube for thermostat
10. Shut-off valve
11. Piezo igniter
12. Firing tip

Electric equipment parts

13. Flexible cord
14. Change-over switch
15. Terminal block, 12 V DC
16. Fuse
17. Relay

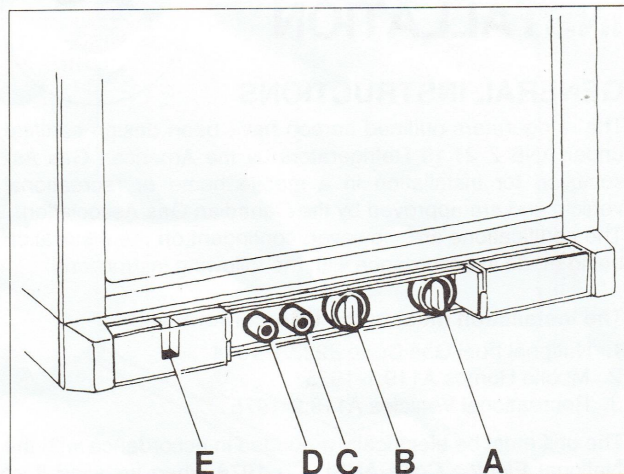


Fig. 4

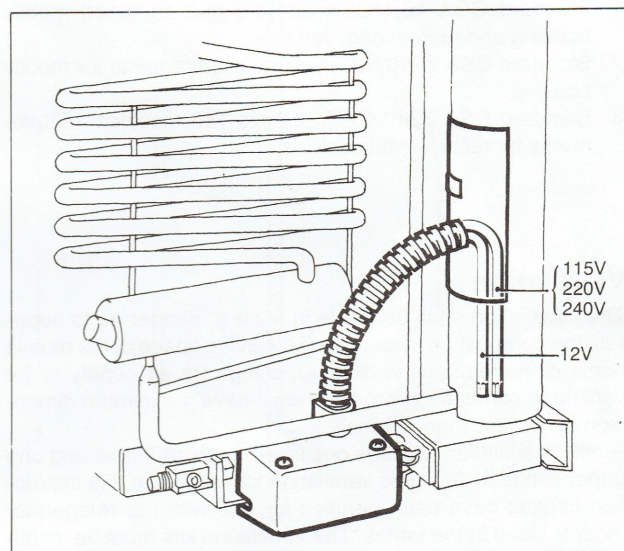


Fig. 5

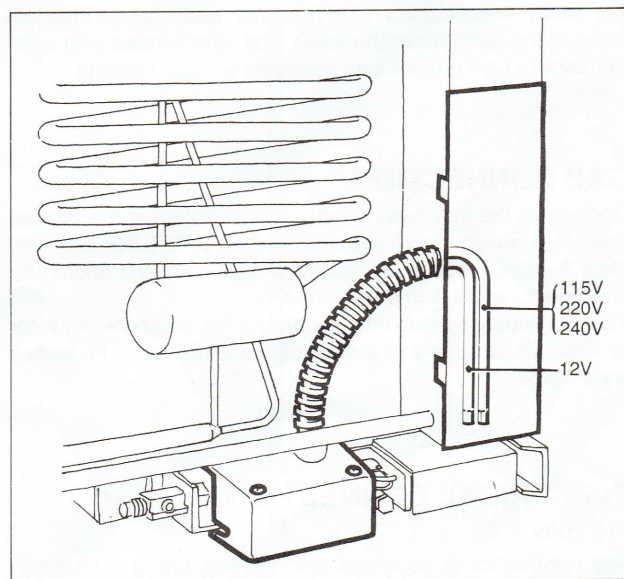


Fig. 6

INSTALLATION



GENERAL INSTRUCTIONS

The refrigerators outlined hereon have been design certified under ANS Z 21.19 Refrigerators by the American Gas Association for installation in a mobile home or recreational vehicle and are approved by the Canadian Gas Association. The certifications are, however, contingent on the installation being made in accordance with the following instructions.

The installation must in the USA conform with:

1. National Fuel Gas Code Z223.1-1974
2. Mobile Homes A119.1-1975
3. Recreational Vehicles A119.2-1975

The unit must be electrically grounded in accordance with the National Electric Code ANSI, CI- 1978 when installed if an external alternating current electrical source is utilized.

4. Any applicable local code

In Canada

1. Standard CGA 10.1/CSA Z240.4, gas equipped mobile housing and recreational vehicles
2. Standard CSA Z240.6.1 electrical requirements for mobile housing
3. Standard CSA Z240.6.2/C22.2 No 148 electrical requirements for recreational vehicles

Ventilation

The installation shall be made in such a manner as to separate the combustion system from the living space of the mobile home or recreational vehicle. Openings for air supply or for venting of combustion products shall have a minimum dimension of not less than 1/4 inch.

Proper installation requires one lower fresh air intake and one upper exhaust vent. The ventilation kits shown in this instruction booklet have been certified for use with the refrigerator models listed in the tables. The ventilation kits must be installed and used without modification. An opening towards the outside at floor level in the refrigerator compartment must be provided for ventilation of heavier-than-air fuel gases. The lower vent of the recommended kits is provided with proper size openings.

For ready serviceability of the burner and control manifold parts of the refrigerator the lower side vent is fitted with a lift-out panel which provides an adequate access opening.

GAS CONNECTION

Hook-up to the gas supply line is accomplished at the manual gas valve, which is furnished with a 3/8" SAE (UNF 5/8"-18) male flare connection. All completed connections should be checked for leaks with soapy water.

The gas supply system must incorporate a pressure regulator to maintain a supply pressure of not more than 11 inches water gage.

ELECTRICAL CONNECTION

115 Volts A C

The refrigerator is equipped with a three prong (grounded) plug for protection against shock hazards and should be plug-

ged directly into a properly grounded three prong receptacle. Do not cut or remove the grounding prong from this plug. The cord should be routed to avoid coming in contact with the burner cover, flue cover or other hot components.

12 V D C optional for certain models

On "Tri-Power" units there is an additional terminal block marked "12 V". The refrigerator must be connected to the battery circuit with two wires of adequate capacity to avoid voltage drop. The wire gage should be chosen with consideration to the wire length in accordance with the following table:

The 12 V circuit must be fused with an appropriate fuse.

TABLE

Maximum two conductor wire length for different AWG numbers.

Maximum two conductor wire length in feet

AWG	RM360 125W	RM460 135W	RM660 175W	RM760 250W	RM1300 275W
14	10	9	7	5	4
12	17	15	12	8	7
10	27	25	19	13	12
8	43	40	31	22	19
6	69	64	49	34	31
4	110	102	79	55	50

Do not use the body or chassis of the vehicle as a substitute for either of the two conductors. No other electrical equipment or lighting should be connected to the refrigerator circuit. The refrigerator will draw from 10 to 21 Amps at 12 Volt depending on model.

CAUTION

Do not operate the refrigerator on 12 Volt when the vehicle is parked. You will run out of battery in a rather short time.

If possible the installation of a 12 Volt operated refrigerator should be completed with a relay mounted either in the car or in the recreational vehicle (see Fig below). This relay will automatically cut out the refrigerator when the car motor is stopped.

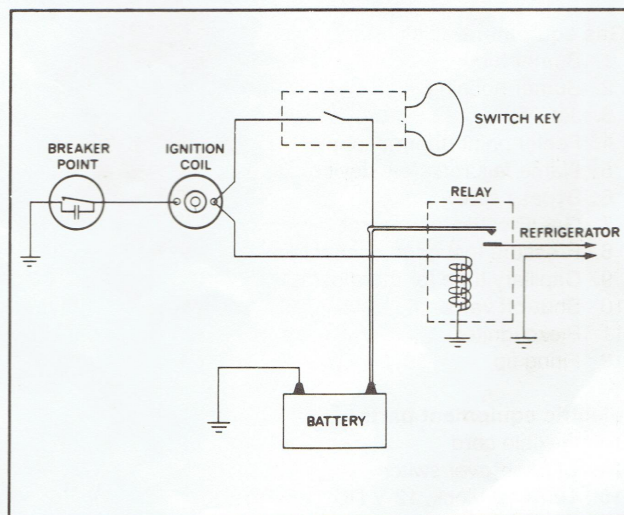


Fig. 7

SPECIAL HINTS

The refrigerator must be installed in a substantial enclosure and must be level. A spirit level is supplied with each refrigerator and by placing it in the freezer compartment one can level the refrigerator both ways front to back and side to side. When installing the refrigerator in the enclosure care should be taken to ensure a complete sealing between the front frame of the refrigerator and the top, sides and bottom of the enclosure. For this purpose a length of sealing strip is applied to the rear surfaces of the front frame. A sealing strip should also be applied to the foremost floor of the enclosure as shown in fig 8.

Be careful not to damage the sealing strip applied to the floor of the enclosure when the refrigerator is put in place.

Any space between counter or storage area and the top of the refrigerator must be blocked. The heat produced at the rear of the refrigerator will otherwise become trapped in this space making the top of the refrigerator hot and reducing the efficiency of the refrigerator.

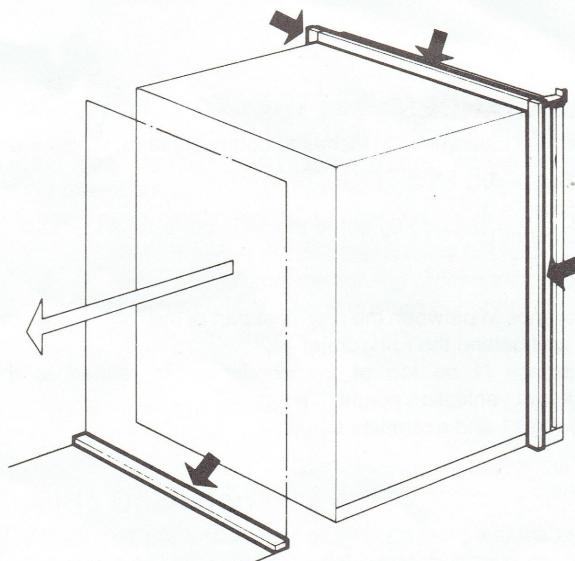


Fig. 8

CERTIFIED INSTALLATION

Certified installations require one roof vent and one lower side vent or as optional one upper vent and one lower side vent. The two alternatives are provided for by using the different kits listed in the Appendix.

For further information contact your dealer or distributor.

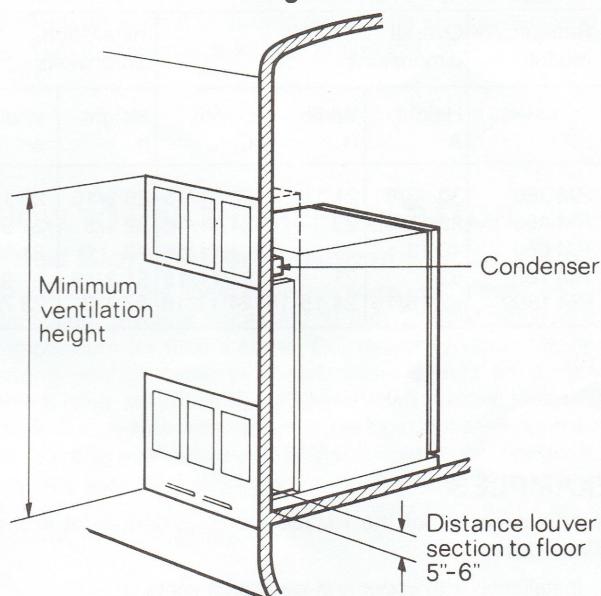


Fig. 9

METHODS OF INSTALLATION

The methods of installation are shown in figures 9 and 10.

It is essential that all maximum or minimum dimensions are strictly maintained as the performance of the refrigerator is dependent on an adequate flow of air over the rear of the refrigerator.

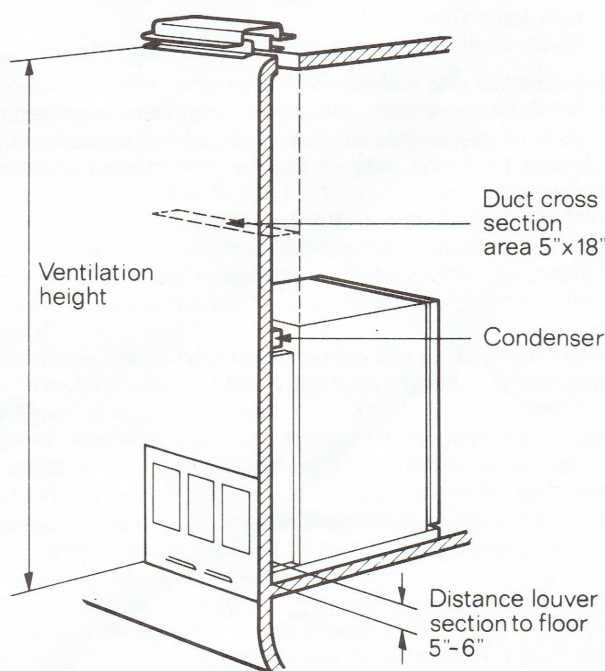


Fig. 10

VENTILATION HEIGHTS

Refrigerator	Minimum ventilation heights in inches	
	Installation with upper and lower side vent	Installation with roof vent and lower side vent
RM360	37	31
RM460	—	34
RM660	—	42
RM760	—	56
RM1300	—	62

CLEARANCES

Minimum clearances in inches to combustible materials are

G: Top 0
K: Side 0
L: Bottom 0
M: Rear 1

Clearance M between the rearmost part of the refrigerator and the wall behind the refrigerator

Clearance N on top of the condenser is related to the minimum ventilation height

See Fig 11 and examples below

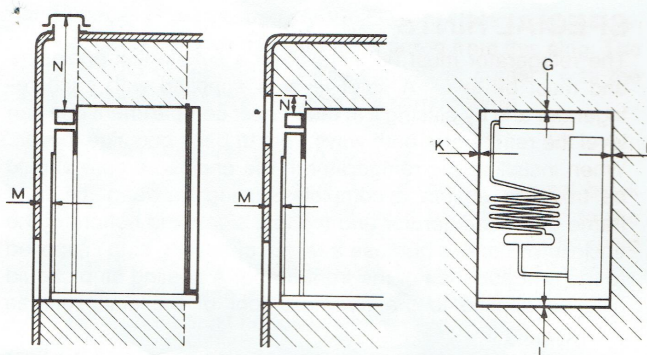


Fig. 11

Refrigerator model	Overall dimensions			Installation dimensions			Recess dimensions			Distance between top of condenser to top of refrigerator e
	Height A	Width B	Depth C	Height h	Width w	Depth d	Height H	Width W	Depth D	
RM 360	30 3/8	21 11/16	22 1/16	29 9/16	20 1/4	20 3/16	29 3/4	20 1/2	21 3/16	1 1/4
RM 460	32 15/16	23	24 11/16	32 1/8	21 9/16	22 3/4	32 5/16	21 13/16	23 3/4	1 1/4
RM 660	40 13/16	23	24 11/16	40	21 9/16	22 3/4	40 3/16	21 13/16	23 3/4	1 1/4
RM 760	52	23	24 11/16	51 3/16	21 9/16	22 3/4	51 3/8	21 13/16	23 3/4	1/8
RM 1300	57 15/16	24 15/16	24 11/16	57 1/8	23 7/16	22 3/4	57 1/2	23 13/16	23 3/4	1/8

EXAMPLES

The clearance N for the RM360 model is derived at in the following way

A. Installation with upper and lower side vents

N=Minimum ventilation height 37 minus installation height 29 9/16 plus distance between condenser top and refrigerator top 1 1/4

$$N=37-29 \frac{9}{16}+1 \frac{1}{4}=8 \frac{11}{16}$$

B. Installation with roof vent and lower side vent

N=Minimum ventilation height 31 minus installation height 29 9/16 plus distance between condenser top and refrigerator top 1 1/4 plus distance between roof surface and roof vent cap 5 1/4

$$N=31-29 \frac{9}{16}+1 \frac{1}{4}+5 \frac{1}{4}=7 \frac{15}{16}$$

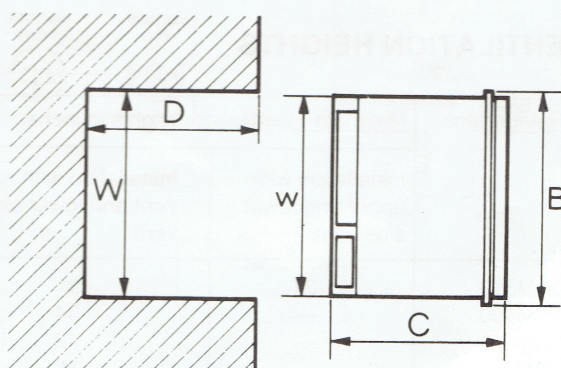
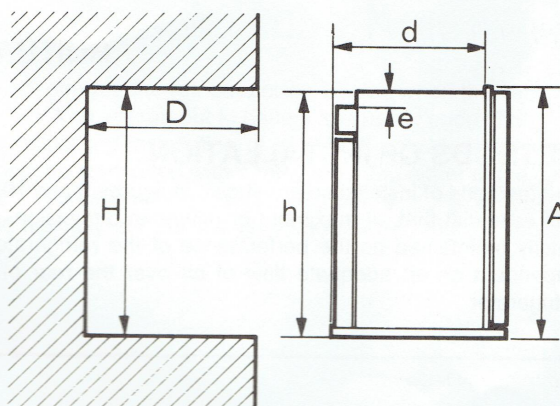


Fig. 12

INSTRUCTIONS FOR USE

INSTALLATION OF THE REFRIGERATOR IN A VEHICLE

The refrigerator must be installed on a solid floor and must be level. With the vehicle carefully leveled the refrigerator should level both ways in the freezer compartment. (More about leveling is to be found under the heading "How to start the refrigerator").

Free air circulation over the fins of the cooling unit is essential. Clearances around the refrigerator should be in accordance with the label attached to the rear plate of the refrigerator.

In case detailed instructions on the installation and connection to the gas supply are required, contact your dealer or distributor.

TO CHANGE THE DOOR OPENING FROM LEFT TO RIGHT OR VICE VERSA

Open the door and unscrew the two screws holding the top front cover. The screws are accessible from beneath. Remove the top hinge pin and lift out the door.

The lower pin for the refrigerator door should be shifted to the opposite side.

The door can then be remounted. Before the top front cover is refitted check that the door closes easily and that the gasket seals well on all sides.

HOW TO START THE REFRIGERATOR Leveling

In the boiler ammonia vapor is distilled from an ammonia-water mixture and carried to the finned condenser, where it liquifies. The liquid flows to the evaporator, where it creates cold by evaporating into a circulating flow of hydrogen gas. If the evaporator coil is not level the liquid readily accumulates, forming pockets which can impair the gas circulation or even block it, in which case, of course, the cooling will stop.

When the recreational vehicle is stationary it must be leveled to be comfortable to live in. If the refrigerator is properly installed, i.e. the freezer shelf parallel to the floor, the refrigerator will then also perform well.

A bubble level should be placed on the freezer shelf. When the vehicle is on tow, the continuous rolling and pitching movement will not affect the refrigerator as long as the movement passes either side of level, but when the trailer is temporarily parked this sensitivity of the refrigerator should be remembered. **So, once more, before you start the refrigerator make sure it is level.**

Gas Operation (Fig. 4)

1. To start the refrigerator turn the knob A to position "GAS"
2. Turn the thermostat knob B to setting 4
3. Push the button C to stop and push the button D of the piezo igniter. The pushing has to be repeated until the gas is lit at the burner. This can be observed through the reflector E

4. After the gas is lit keep the button C pushed for 10 seconds. Release the button and check through the reflector that the burner flame stays burning. If not repeat the lighting procedure.

NOTE: After a replacement of the gas container or a long shut off period the gas line is likely to be filled with air. In such a case the lighting procedure has to be repeated until the air is pushed out of the line and the gas has reached the burner.

Electric Operation (Fig. 4)

1. Check that the attachment plug is correctly connected to the mains supply. When the refrigerator is equipped also for 12 Volts D C operation the low voltage connection is made at the marked terminals at the rear of the refrigerator
2. Turn the knob A to desired position for electric operation
3. Turn the thermostat knob B to setting 4

HOW TO USE THE REFRIGERATOR Food Storage Compartment

The food storage compartment is completely closed and unventilated, which is necessary to maintain the required low temperature for food storage. Consequently foods having a strong odor or liable to absorb odors should be covered. Vegetables, salads etc should be covered to retain their crispness. The coldest positions in the refrigerator are underneath the cooling evaporator and at the bottom of the refrigerator, and the least cold positions are on the upper door shelves. This should be considered when different types of food are placed in the refrigerator.

Defrosting

Some refrigerator models are equipped with an automatic defrosting device incorporated with the cooling unit. This device makes a quick defrost of the finned evaporator section about once a day without affecting the frozen food storage compartment or the frozen foods contained in it. When the frozen food storage compartment is covered with frost the refrigerator must be shut down temporarily till the frost is melted. Before the refrigerator is restarted the compartment should be dried, the ice trays washed and refilled with fresh water.

When the frost on the finned evaporator section has melted water will be collected in the drip tray. The drip tray should be emptied at regular intervals.

Some refrigerators without the automatic defrosting device should be defrosted regularly by turning off the refrigerator.

Empty the refrigerator leaving the drip tray under the finned evaporator and the cabinet and freezer doors open. If desired, defrosting may be speeded up by filling the ice tray with hot water and placing it in the freezer.

When all frost is melted, empty the drip tray and dry the interior of the refrigerator with a clean cloth.

Replace the drip tray and ice tray, replace all food stuffs and set the thermostat to MAX for a few hours. Then reset the thermostat knob to its normal position.

Frozen Food Storage Compartment

The ice trays should be placed in direct contact with the freezer shelf for fastest ice making. Quick frozen soft fruits and ice cream should be placed in the coldest part of the compartment which is at the bottom of the aluminum liner or, in models with a shelf, on this or just below it. Frozen vegetables, on the other hand, may be stored in any part of the compartment.

The compartment is not designed for the deep or quick freezing of foodstuffs. Meat or fish foods, whether raw or prepared, and provided they are precooled in the refrigerator, can however, also be stored in the frozen food storage compartment. They can then be stored about three times as long as in the fresh food storage compartment. To prevent drying out, keep food in covered dishes, in plastic bags or wrapped in aluminum foil.

Ice Making

Ice cubes can be made in the ice trays which should be filled with water to within 1/4" (5 mm) from the top. To release the ice cubes seize the tray with both hands and twist the tray as shown in fig O. Cubes not required should preferably be replaced in the tray. Refill the tray with water and replace the tray on the freezer shelf.

Ice making is accelerated if the thermostat knob is turned to setting "MAX". It is a good idea to do this a few hours before an anticipated need for ice but be sure to turn the knob back to normal setting when the ice is formed or the foodstuffs in the cabinet may become frozen hard.

To Shut Down the Refrigerator

To shut down the refrigerator temporarily set the thermostat to off and turn off the gas tap. If the cabinet is not in operation over a period of weeks, it should be emptied and cleaned and the door left ajar. The ice trays should also be dried and kept outside the cabinet.

Cleaning

To clean the interior lining of the refrigerator use lukewarm weak soda solution. The evaporator, ice trays and shelves must, however, be cleaned with warm water only. Never use strong chemicals or abrasives to clean these parts or the protective surface will be spoiled. It is important always to keep the refrigerator clean.

CAUTION

Do not store explosive substances in the refrigerator, such as cigarette lighter gas, petrol, ether or the like.

GAS EQUIPMENT

Flue Top and Baffle

The flue baffle is suspended from the top and must be in position in the central tube of the cooling unit.

The burner and the bypass screw (Fig. 2)

The slots of the burner must be centrally located under the boiler tube. To change or clean the burner proceed as follows:

1. Remove the protection plate from the burner housing
2. Disconnect the igniter lead (18) and loosen the screw (19)
3. The burner tube with its bracket can be released and taken out downwards
4. The orifice spud (3) can be unscrewed and taken out
5. Clean the orifice with alcohol and compressed air ONLY. Never use a pin or similar instrument
6. Clean the burner tube and especially the slots with a brush. Blow with compressed air
7. Reassemble.

The Thermostat

The refrigerator is equipped with a thermostat which is regulated by turning the knob to different settings in order to obtain the desired controlled cabinet temperature.

At OFF Under normal operating conditions the thermostat valve remains closed and the burner is running continuously at the by-pass rate, just enough to keep the burner lit.

At MAX The thermostat valve remains open and the burner is running continuously at full gas rate. Lowest cabinet and freezer temperatures are obtained at this setting.

Between these two extremes is a numbered portion of the dial over which various controlled temperatures can be obtained, the higher the number, the lower the temperature.

As soon as the required cold temperature inside the cabinet is reached, the thermostat cuts the burner main flame leaving the by-pass flame to keep the safety valve open.

Flame Blow Out

If trouble is encountered with the flame blowing out under specially windy conditions, try to avoid the wind blowing against the wall where vent outlets are located. If the trouble persists, set the thermostat to MAX. This latter measure can of course only be temporary such as when the vehicle is on tow, for after a day or so at this setting the foodstuffs in the cabinet will freeze.

The igniter

The refrigerator is fitted with a piezo igniter, which does not normally need any maintenance. If the igniter does not work properly contact an authorized service point.

ELECTRIC EQUIPMENT

The refrigerator is equipped also for electric operation. Most models are equipped for both 115 Volts A C and 12 Volts D C operation.

The heat necessary for the operation of an absorption type cooling unit is supplied by an electric cartridge heater mounted in a pocket of the boiler system.

To replace the heater first of course check that the wall plug is disconnected. If the refrigerator is equipped also for 12 Volts D C operation make sure that the 12 V leads are disconnected. Then proceed as follows:

1. Remove the plastic cover (22) of the main control structure by loosening the two screws
2. Disconnect the heater leads
3. Pull off the metal hose
4. With a pair of pliers unfold the lug holding the lid of the boiler casing and open the lid
5. Remove some insulation wool so that the heater is accessible.
6. Turn and lift the heater out of its pocket
7. Fit the new heater into the pocket and pull on the hose around the leads
8. Connect the leads and put on the plastic cover
9. Reset the insulation and close the lid of the boiler casing

SWITCH

The electric control also comprises an on-off switch operated by the selector knob at the front panel. The switch has two "on"-positions, one for 115 Volts A C and one for 12 Volts D C operation.

ELECTRIC THERMOSTAT

The electric thermostat is combined with the gas thermostat and is thus operated by the knob B at the front panel. The temperature in the refrigerator can be regulated by turning the thermostat knob to higher or lower numbers. Although the exact setting is not critical choose a setting at which the frost which gradually forms on the cooling evaporator is just maintained in dry condition.

It will be necessary to set the thermostat knob one or two numbers higher when the ambient temperature becomes higher or the load unusually heavy.

If less cooling is required a lower setting should be chosen.

Periodic maintenance (Fig. 2)

NOTE. Before working on the refrigerator make sure that 115 V A.C. and optional 12 V D.C. leads are disconnected.

Once or twice a year depending on use, it is necessary to clean and adjust the burner assembly. Proceed as follows:

1. Loosen screw and remove cover plate for burner housing.
2. Disconnect lighter cable from the electrode.
3. Loosen burner fixing screw and withdraw burner.
4. Clean burner tube with a brush. Blow with compressed air.
5. Screw off jet and clean with alcohol. Blow with compressed air. Never use a needle or similar.
6. Reassemble.

How to replace the thermo-element of the flame failure safety device (Fig. 3)

1. Remove the plastic cover 22 (Fig. 5).
2. Unscrew plug 20 and pull thermo-element straight out.
3. Remove spring 21.
4. Pull out thermo-element sideways from burner housing.
5. Bend the new thermo-element to the same shape as the old one.
6. Reassemble in reverse order. Check that feeler has been correctly refitted in relation to burner. See Fig. 3.

7. Mount plug 20, taking care not to damage the threaded hole in the aluminum cap of the housing. The plug must be properly tightened to the valve housing to ensure good contact between the thermo-element and the magnetic coil within the housing.

WARNING

If the refrigerator is used intermittently it should be checked at least once a year.

At the same time, check the flue baffle that it is clean and reasonably free from soot. Heavy soot formation indicates improper functioning of the burner. Clean baffle and flue. Further, clean cooling unit and floor under refrigerator.

The entire gas installation should be checked for leaks at intervals. Test all pipe connections with soapy water, not with an open flame.

FAULTTRACING

The refrigerator does not freeze satisfactorily

Causes and remedies

- a) Jet orifice clogged. Unscrew jet and blow clear or wash in alcohol. Do not use wire or pin to clean orifice.
- b) Check the leveling of the refrigerator.
- c) Flame has gone out. Remedy: 1) Gas in bottle is used up – refill. 2) Feeler point of the flame failure safety device is not heated enough by flame – check against fig. 2 or 3.
- 3) Clogged by-pass screw – clean or exchange it.
- d) Air circulation around cooling unit is restricted. Be sure that refrigerator is properly ventilated.
- e) The evaporator is heavily coated with frost. Defrost.
- f) Flue baffle not inserted into the central tube of the cooling unit.
- g) The thermostat is incorrectly used. See paragraph on thermostat. In hot weather the setting should be one or two numbers "colder" than usual.
- h) Gauze in burner head clogged. Clean.
- i) Burner damaged. Replace.
- j) Burner may be dislocated. Relocate.
- k) Wrong gas pressure at the burner. Have pressure checked at burner and at gas bottle. Pressure at burner must not fall below 11 " W.G. when thermostat is set on MAX.

ODOR FROM FUMES

Causes and remedies

- a. The flame touches side of the boiler due to dislocation of the burner. Relocate. Burner dislocation may also cause smoke and discoloring of walls and ceiling.
- b. Burner damaged. Replace.
- c. The flame touches flue baffle. Remedy: 1) Burner damaged. Replace. 2) Flue baffle too low. Correct the position of the baffle.
- d. The flue tube is dirty. Clean flue as follows: Cover burner and jet. Remove flue top and baffle. Clean flue with special flue brush. Clean baffle before putting back in place.

All the above instructions are to be followed closely. The refrigerator is quality-guaranteed. However, we are not responsible for any failures caused by improper adjustments and unfavorable installation conditions. Contact service point or distributor service dept. for assistance.

INSTRUCTIONS FOR MOUNTING THE DOOR PANEL

The refrigerator is normally delivered without door panel(s). Before starting the mounting work check that the panel dimensions are in compliance with those given in the table and read the instructions through. When mounting the panel, proceed as follows.

- A. Remove the top decoration strip (2) with its two screws (1).
- B. Insert one of the vertical edges of the panel into the groove of the door frame (3).
- C. Bend the panel gently so that the free side of the panel can be slipped into the corresponding groove of the door frame (4).
- D. Push the panel downwards so that the lower horizontal edge of the panel is fitted into the bottom groove (5).
- E. Between the upper edge of the panel and the door frame there is now a gap which should be covered by the decoration strip.
- F. Put the strip across the door so that the gap is covered and push it upwards (6). The tabs on the inside of the strip should fit in behind the flange of the door frame. Secure the decoration strip by means of the two screws (1).

Panel dimensions Thickness max. 5/32"

TYPE	HEIGHT		WIDTH	
	MAX.	MIN.	MAX.	MIN.
RM 360	636 25"	633 24 7/8"	516,5 20 11/32"	513,5 mm 20 7/32" inch
RM 460	679 26 23/32"	676 26 19/32"	550,5 21 11/16"	547,5 mm 21 9/16" inch
RM 660	879 34 5/8"	876 34 1/2"	550,5 21 11/16"	547,5 mm 21 9/16" inch
RM 760 upper	288 11 11/32"	285 11 7/32"	550,5 21 11/16"	547,5 mm 21 9/16" inch
RM 760 lower	801 31 17/32"	798 31 13/32"	550,5 21 11/16"	547,5 mm 21 9/16" inch
RM 1300 upper	360 14 3/16"	357 14 1/16"	598,5 23 9/16"	595,5 mm 23 7/16" inch
RM 1300 lower	879 34 5/8"	876 34 1/2"	598,5 23 9/16"	595,5 mm 23 7/16" inch

Storage Volumes

Refrigerator model	Total storage volume in cu ft
RM360	3.0
RM460	3.9
RM660	5.1
RM760	6.0
RM1300	7.7

